

Attachment E

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

CROWN CASTLE FIBER LLC,

Complainant,

v.

COMMONWEALTH EDISON COMPANY,

Respondent.

File No.

DECLARATION OF NELSON BINGEL

I, NELSON BINGEL, declare as follows:

1. I serve as President of Nelson Research LLC (“Nelson Research”), with a mailing address 207 Marcie Court, Senoia, Georgia 30276.

2. I have served as President of Nelson Research for over 2 years. In this role, I perform consulting, subject matter expert, and expert witness services related to overhead electrical and telecommunications lines. I specifically consult and testify on matters related to structure strength and loading, loss of strength from wood decay or steel deterioration, inspection and restoration of wood poles, and clearances.

3. Since 2016 I have served as Chairman for the National Electrical Safety Code (“NESC”), which establishes the safety requirements for construction and maintenance of overhead and underground lines. Before becoming Chairman, I was a member of the NESC’s Strength & Loading subcommittee since 1989 and was chairman of that subcommittee from 2010 to 2016.

4. In addition to my work with Nelson Research and the NESC, I am Chairman of the Accredited Standards Committee O5, which publishes new wood pole and crossarm manufacturing specifications and strengths.

5. Prior to my work with Nelson Research, I enjoyed a 30-year career with Osmose Utilities Services, Inc. (“Osmose”), where I researched, developed, and tested tools, products, and methods for inspection, analysis and repair or restoration of utility structures. I most recently served as Vice President, Product Strategy for Osmose.

6. My curriculum vitae is attached to this Declaration as Exhibit 1.

7. I make this Declaration in support of Crown Castle’s Pole Attachment Complaint in the above-captioned case. I know the following of my own personal knowledge, and if called as a witness in this action, I could and would testify competently to these facts under oath.

General Background on Red Tagging Poles

8. Utility companies usually inspect wood poles on a regular basis. As part of that process, in addition to inspecting the condition of attachments above ground, the pole is inspected to detect and measure decay, insect, and mechanical damage, which usually occurs near or below the groundline. When deterioration is detected, the measurements of the extent of decay or damage are used to determine the remaining strength of the pole. Based on that evaluation, a tag will be placed on the pole to identify its status.

9. Typically, a “red tag” may be applied if the remaining strength of the pole has been reduced below a standard established by the NESC. This standard is a common industry practice in which a red tag is attached to a pole if the remaining strength is 67 percent or less of its original strength. Designation of a pole with a red tag then triggers other requirements for remediation.

10. Some red tagged poles are candidates to be rehabilitated via reinforcement techniques. Other red tagged poles require replacement.

11. Red tagged poles with advanced decay conditions that have significantly reduced strength are often classified as “priority” red tagged poles. Poles with less advanced decay conditions are classified as “non-priority.”

12. Poles are originally red tagged during inspection when the remaining strength of the pole is compared to the original strength of the pole. However, the exact requirement of the NESC, as stated in Footnote 2 of Table 261-1, is that a pole becomes a “red tag” when the strength is reduced to two-thirds of what is required for the actual loading. Because the inspection process typically does not include an analysis of the actual loading, the inspection

process assumes that the pole is fully loaded. Therefore, as a practical matter, a pole becomes a red tagged pole when the remaining strength is two-thirds or less of the original pole strength, regardless of actual loading. However, when the actual loading for a pole is determined, the NESC states that the remaining strength must exceed two-thirds of the strength required to support the actual loading on the pole. Most wood utility poles are not fully loaded. As a result, many poles that are determined to be at or below the 67% strength threshold based only on the original strength of the pole may still be considered serviceable if the actual loading were taken into account. As an example, if a pole is only loaded to 75% of its capacity, then the NESC only requires the pole to have 50% of its original strength before it should be red tagged. Despite the fact that to determine whether a pole should be red tagged based on the actual load would require a loading analysis, the practice of analyzing the actual load on a red tag pole to see if it still meets code requirements is not widely applied in the industry today. This means that there may be some in-service poles that were assigned a red tag status based on the remaining strength compared to original strength, but under the NESC those poles may be serviceable if a loading analysis were performed to determine that the pole strength was not reduced below the threshold for red tag status.

13. Ultimately, red tagged poles need to be remediated, either through replacement or if possible, reinforcement in a timely manner. NESC Rule 214.A.5.a states, “Lines and equipment with recorded conditions or defects that would reasonably be expected to endanger human life or property shall be promptly corrected, disconnected or isolated.” Rule 214.A.5.b states “Other conditions or defects shall be designated for correction.” Standard industry practice is to restore or replace “non-priority” red tagged poles either in the same year as the inspection or at some point during the following year. “Priority” red tagged poles are identified during the inspection process based on the remaining strength threshold below which the pole owner designates a red tagged pole to be classified as a “priority”. The purpose of this designation is to initiate mitigation of severely weakened poles in shorter time frames than non-priority red tagged poles. Standard industry practice is to restore or replace “priority” poles within time frames such as 30, 90 or 180 days. The varying length of time reflects the fact that utilities may have varying standards for when a red tagged pole becomes “priority.” For example, a 180-day standard may be appropriate where the utility designates a pole as priority when it has a higher level of strength remaining, compared to a utility that may not designate as

priority until the pole has very little strength remaining and requires nearly immediate, emergency replacement.

ComEd's Red Tag Wood Pole Practices

14. I have reviewed a high-level summary of ComEd's pole tagging practice, called a "Technical Bulletin," which ComEd provided to Crown Castle. The summary is attached to this Declaration as Exhibit 2.

15. I have also reviewed some e-mail correspondence between Crown Castle and ComEd regarding the red tag practice, which is attached as Exhibit 3 to this Declaration.

16. In addition, I have had discussions with Crown Castle personnel to further understand ComEd's red tag practice; however, I understand that ComEd has provided Crown Castle with little detail about how the different red tag outcomes are determined.

17. It is my understanding that ComEd inspects and treats its wood utility poles on a 10-year cycle "to assess the strength and structural integrity to determine the maintenance required to reduce wood pole failure."¹

18. It is also my understanding that during the ComEd inspection process, if a pole is determined to have lost 33 percent or more of its original strength, ComEd labels that pole with a "red tag" that determines the priority and another tag to identify whether the pole is a candidate for restoration or replacement.²

19. It is my understanding that ComEd categorizes red tag poles into four categories. ComEd assigns red tag poles either a Non-Priority or a Priority status. In addition, ComEd also assigns each pole as Restorable or Non-Restorable (Replacement) status. Thus, a red tagged pole could be (i) Priority Restorable, (ii) Priority Non-Restorable (Replacement), (iii) Non-Priority Restorable, or (iv) Non-Priority Non-Restorable (Replacement).³

20. According to ComEd's Summary, Priority Restorable poles are restored in the current inspection year and Priority Replacement poles are scheduled for replacement the "next

¹ Exhibit 2, ComEd "Red Tag" Summary

² Exhibit 2, ComEd "Red Tag" Summary

³ Exhibit 2, ComEd "Red Tag" Summary

calendar year after inspection.”⁴ Crown Castle is not aware of whether this policy of ComEd has been practiced.

21. Moreover, the ComEd Summary asserts that Non-Priority Restorable poles “will be *Restored/Reinforced/C-Truss* after Load Calculation classification within a set timeframe,” and likewise, Priority Non-Restorable (Replacement) poles will be replaced “after Load Calculation classification within a set timeframe.”⁵ However, Crown Castle understands that ComEd is *not* performing Load Calculations on any Non-Priority red tagged poles. As a result, it is my understanding that red tagged poles that are “non-priority” (whether replacement or reinforcement) are not being scheduled for remediation by ComEd, apparently not any time within the 10-year inspection cycle.

22. My understanding from Crown Castle is that approximately 75 percent of the ComEd red tagged poles are Non-Priority and approximately 25 percent are Priority.

23. It is my understanding that ComEd has not provided an explanation of the criteria to differentiate “non-priority” from “priority” red tagged poles. Neither has there been an explanation of how it is determined whether a pole is a restorable candidate or needs replacement.

24. Based on communications from ComEd to Crown Castle, it is my understanding that in fact ComEd has no “set time frame” for conducting the load calculation for Non-Priority Poles and that ComEd will wait as long as ten (10) years from the date of inspection to revisit Non-Priority Poles.

25. Standard industry practice is to restore or replace Non-Priority poles during the next year’s inspection program, although it is not unusual for utility companies to restore Non-Priority poles during the same year as the inspection.

26. It is not a reasonable industry practice nor is it reasonable or appropriate engineering practice to wait more than 1 year and up to as much as 10 years before re-inspecting and/or correcting a pole after it is labeled with a red tag.

27. ComEd’s practice of labeling poles with a red tag, but potentially taking no action to repair or replace those poles for over a year and possibly as long as 10 years raises significant issues and questions. Notably, if ComEd is using standard industry thresholds for defining when

⁴ Exhibit 2, ComEd “Red Tag” Summary at 3.

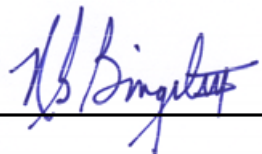
⁵ Exhibit 2, ComEd “Red Tag” Summary at 3.

a pole is “red tagged”, which ComEd claims by citing the use of a 67 percent threshold, then its failure to remediate that condition during the next year is unreasonable in light of standard industry practice and good engineering practice. Alternatively, if ComEd is using a different standard than the 67 percent threshold stated in its documents, such that it is not considered unreasonable for ComEd to delay remediation beyond a year, then ComEd’s practice raises questions about whether ComEd is inappropriately applying the red tag status to a significant number of poles. Indeed, ComEd’s practices suggest that some significant number of its Non-Priority Poles may be able to accommodate attachment by Crown Castle if a loading analysis were performed. At a minimum, it is not reasonable for ComEd to apply red tag status to a significant number of poles and have those poles remain in that status for potentially many years, unavailable for additional third-party attachment or even any work by existing attaching companies.

28. In addition, to determine whether a Non-Priority pole is strong enough to support an existing load or a new attachment, the NESC does allow a utility to perform a pole-specific load analysis on Non-Priority poles. However, based on communications from ComEd to Crown Castle, it appears that ComEd is not performing pole-specific load analyses on Non-Priority poles.

29. Refusing to perform a pole-specific load analysis on Non-Priority red tagged poles to determine whether these poles are able to accommodate Crown Castle’s proposed attachment, or even to determine whether the pole can be strengthened through reinforcement is unreasonable and is not consistent with standard industry practice or good and standard engineering practice.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.



Nelson Bingel

Dated: June 17, 2019

Exhibit 1

CURRICULUM VITAE

Nelson G. Bingel III

Subject Matter Expert

Expert Witness

Electric & Telecom Overhead Lines

Utility structures

Wood, Steel, Concrete, Fiberglass

Original Structure Strength

Wood Decay and Steel Deterioration

Inspection Techniques

Remaining Strength Analysis

Structure Loading Analysis

Clearance Analysis

Third Party Attachments

Industry Best Practices

Chairman

National Electrical Safety Code

The premiere safety standard for overhead and underground electric and telecom lines

Chairman

Accredited Standards Committee O5

Publishing standards for the manufacture of wood poles and crossarms

Osmose Utilities Services, Inc.

30-year career researching, developing and testing tools, products and methods for inspection, analysis and repair or restoration of utility structures.

Purdue University 1969-1973

BS Mechanical Engineering

Four US Patents

Other Technical Society Memberships

IEEE

Institute of Electrical and Electronics Engineers

ASCE

American Society of Civil Engineers

AWPA

American Wood Protection Association

March 5, 2019



Marital Status: Married

Date of Birth: 9/13/1951

Place of Birth: Buffalo, NY

Business: Near Atlanta, GA

Nelson Research, LLC

207 Marcie Ct.

Senoia, GA 30276

(678) 850-1461

nbingel@nelsonresearch.net

Patents obtained while with OsmoseJune 27, 2000

US Patent 6,079,165: Apparatus and method for bracing vertical structures

April 29, 2008

US Patent 7,363,752 B2: Pole Reinforcement Truss

August 26, 2008

US Patent 7,415,808 B2: Pole Reinforcement Truss

January 16, 2018

US Patent 9,869,622: Automated profiling of the hardness of wood

Products developed while with Osmose1987*Re-design* of existing Osmo-C-Truss wood pole restoration system. Steel truss design was optimized for efficiency in correlating with the requirements of the National Electrical Safety Code.1999/2010*O-Calc®/O-Calc Pro™* - Comprehensive Pole Loading Software

Software used by Osmose and companies across the country to model in-service utility poles and evaluate loading per the National Electrical Safety Code or GO 95 in California.

2000*C2-Truss™* - Wood Pole Restoration System – 3 Patents Awarded

This unique, computer-aided design enabled using very high strength steel to produce steel trusses for restoring wood poles that are lighter, stronger and lower in cost.

2005*StrengthCalc®* - Electronic Wood Pole Strength Calculator

This software tool provides greatly enhanced precision for determining the remaining strength of in-service wood poles that have some level of deterioration in the zones just below and above the groundline. StrengthCalc is utilized during inspection of millions of wood poles annually and helps insure proper classification of their condition for optimum asset management.

2006*LoadCalc®* - Electronic Pole Loading Estimating Tool

This software tool enables users to estimate the loading of in-service poles as a low cost screening tool that can be incorporated with regular pole inspection programs. This can save a majority of poles from requiring a comprehensive pole loading analysis which incurs a significantly higher cost.

Industry Association Activities

National Electrical Safety Code (NESC) – the standard that establishes safety requirements for the construction, operation and maintenance of overhead and underground electrical and communication lines.

NESC Committee

Chairman: Aug 2016 forward

NESC Strength & Loading Subcommittee

Chairman: 2009 – 2016

Member: 1990 – 2016

NESC Main Committee

Member: 2009 – present

NESC Executive Subcommittee

Member: 2013 – present

American Standards Committee O5 (ASC O5) – this committee publishes standards for the manufacturing of wood poles and crossarms.

Chairman: 2006 – present

Member: 1990 - present

ASC O5 Fiber Strength Subcommittee

Chairman: 1998 – 2015

Member: 1990 - present

American Society of Civil Engineers (ASCE)

Member: 1996 - present

ASCE Committee on Recommended Practice for the **Design and Use of Wood Pole Structures** for Electrical Transmission Lines

Member: 2014 – present

Reliability-based Design Committee of the Structural Engineering Institute of ASCE

Member during the development through publishing in 2006

Task Committee on **Fiber-Reinforced Polymer Products for Overhead Utility Line Structures**; the Structural Engineering Institute of ASCE

Member during the development through publishing in 2003

Institute of Electrical and Electronics Engineers (IEEE)

Overhead Lines Working Group on the NESC

Chairman: 1996 – present

Member: 1988 - present

American Wood Protection Association (AWPA) – publishes standards for preservative treatment of all wood groups, including wood poles.

Member: 1988 - present

Articles, Manuals, Publications

1994 *Electric Perspectives Magazine* – Nov/Dec – Edison Electric Institute
“Restore, Don’t Replace”

1998 *Wood Design Focus*
- A Journal of Contemporary Wood Engineering; Forest Products Society
“Computer-Aided Design of Fiber Composite Wraps for Wood Pole Restoration”

2003 – *Manual of Recommended Practice for Fiber-Reinforced Polymer Products for Overhead Line Structures*; Edited by Jim Davidson; ASCE MOP-104

2006 – *Manual of Practice for Reliability-Based Design of Utility Pole Structures*; Edited by Habib Dagher; ASCE MOP-111

2007 – *Transmission and Distribution World Magazine*
“Extreme Winds Test Wood Pole Strength”

2016 – *Electric Energy Online*
“Guest Editorial | 2017 Revisions and Review Underway to the National Electrical Safety Code (NESC)”

2016- *Energy Central*
“Highlights, Changes and New User Elements of the 2017 National Electrical Safety Code

2017 – *Power Grid International*
“The Pole Express
– Road to System Resiliency Varies, but all Benefit from Taking a Closer Look”

2017 – *Natural Gas & Electricity*
“Wood Pole Strength & Loading - Key to Resiliency, Require Programs”

Conference Presentations

1999 Utility Pole Structures Conference – Reno, NV –
Northwest Public Power Association (NWPPA), Western Electric Power Institute (WEPI)
Utility Structure Conference
“Proposed Code Changes: American Standards Committee O5/National Electrical Safety Code”

2000 Northeast Utility Pole Conference – October 17-18, Binghamton, NY
“Product Design in the new Electric Utility Environment”

2000 American Society of Civil Engineers (ASCE) Structures Congress – Philadelphia, PA
“Code Issues and Applications for Fiber Reinforced Composite Utility Poles”

2000 International Conference on Utility Line Structures – March 20-22, Ft. Collins, CO

“Product Design in the New Electric Utility Environment”

2000 Southern Pressure Treaters Association (SPTA) Winter Conference – January, 23-25, Key Largo, FL

“Update on ANSI O5.1 New Wood Pole Standard”

2000 Geospatial Information and Technology Association (GITA) Conference

“Utility Pole GIS Data Systems”

2001 Power Transmission & Distribution Asset Management Conference – Oct 27-28, Atlanta, GA

“Building a Data Strategy to Improve Reliability Planning”

2001 Institute of Electrical and Electronics Engineers (IEEE) Transmission and Distribution Conference – October 28-November 1, Atlanta, GA

“2002 National Electrical Safety Code (NESC) Update”

2001 National Joint Use Educational Conference – October 22-23, Phoenix, AZ

“2002 National Electrical Safety Code (NESC) Update”

2001 Southeast Electrical Exchange (SEE) Joint Use Committee Meeting – March 4-6, Orlando, FL

“Utility Pole Strength and Loading for Joint Use Applications”

2001 Edison Electric Institute (EEI) Transmission Committee Meeting – October 7-10

“2002 National Electrical Safety Code (NESC) Update”

2001 Western Energy Institute (WEI) Overhead Electric Distribution Workshop –Sep 10-12

“2002 National Electrical Safety Code (NESC) Update”

2002 Southeast Electrical Exchange (SEE) Joint Use Committee Meeting – May 19-21, Atlanta, GA

“Options for Overloaded Poles”

2002 Northeast Utility Structure Conference – October 22-23, Binghamton, NY

“Update on ANSI O5.1 – New Wood Pole Specification”

2002 SBC/Ameritech Technical Training Symposium - Chicago, IL

“Utility Pole Loading and Clearances”

2003 Southeastern Electric Exchange (SEE) Annual Conference – June 11-13

“Transmission Structure Asset Management”

2003 Northwest Public Power Association (NWPPA) Utility Structure Conference - Reno, NV

“ANSI O5.1-2002 – The Inside Story”, “2002 NESC Update”

2005 Western Electric Institute (WEI) Utility Pole Conference, October 26-27, Reno, NV

“Code Update: ANSI O5.1-2005, Upcoming NESC 2007”

2005 Institute of Electrical and Electronics Engineers (IEEE) Winter Power Meeting – Jan 23-25, Albuquerque, NM
“NESC and ANSI O5 Overview”

2006 International Conference on Overhead Lines – March 27-31, Ft. Collins, CO
“Code Update: NESC and ANSI O5”

2006 Edison Electric Institute (EEI) Transmission, Distribution & Metering Conference – April 2-5, Houston, TX
“Code Update: NESC and ANSI O5”

2006 American Wood Preservers’ Association (AWPA) 102nd Annual Meeting – April 9-12, Austin, TX
“Code Update: NESC and ANSI O5”

2006 Florida Public Service Commission Workshop – April 17, Tallahassee, FL
“Wood Pole Strength & Loading”

2006 Municipal Electric Authority of Georgia (MEAG) – October 6, Cordele, GA
“Breakthroughs in Steel Restoration Truss Design”

2006 Northeast Utility Pole Conference – October 24-25, Binghamton, NY
“Code Update: NESC and ANSI O5”

2007 Institute of Electrical and Electronics Engineers (IEEE) Towers, Poles and Conductors Panel Session – Orlando, FL, January 9
“Significant Rejected Change Proposals to the 2007 NESC”

2007 Southeastern Utility Pole Conference – February 11-13, Tunica, MS
“ANSI & NESC – What’s New for Your Poles”

2007 Florida Electric Cooperatives Association (FECA) Engineers Conference – May 30-June 1, Clearwater, FL
“New Technology – Managing Wood Pole Strength and Load”

2007 Western Electric Institute (WEI) Utility Pole Conference – Oct 10-11, Vancouver, WA
“ANSI & NESC Update”

2008 International Conference on Overhead Lines – March 31-April 3, Ft. Collins, CO
“Code Updates – ANSI O5 & NESC”

2008 Northeast Utility Pole Conference – October 22-23, Binghamton, NY
“Steel and Concrete Utility Structure Corrosion”

2010 Utility Reliability Conference – February 10, Columbus, OH
“Reliability from the Ground Up”

2010 International Overhead Utility Conference, March 29-April 1, Ft. Collins, CO
“Code Update – ANSI O5.1 & NESC Safety”

2011 Eastern Utility Pole Conference – October 18-19, Baltimore, MD
“ASC O5 Committee – Wood Poles, Crossarms, Laminated Poles” – “NESC Update”

2012 International Overhead Utility Conference, March 28-April1, Ft. Collins, CO
“NESC Update”

2012 Spring Heartland Joint Use Conference – May 9-10, Pittsburgh, PA
“ANSI / NESC Code Review”

2012 Fall Heartland Joint Use Conference – October 24-25, Dayton, OH
“ANSI/NESC Code Review”

2016 National Electrical Safety Code (NESC) Workshop: Changes for the Future - October 18-19, 2016, San Antonio, TX
Workshop Host and Presenter

2017 National Association of Regulatory Utility Commissioners (NARUC)
Summer Policy Meeting – July 16-19, 2017, San Diego, CA
“Technology Developments & Challenges for Building 5G Small Cell Networks”
“Distributed Solar: Jurisdiction between NESC and NEC”

2018 National Association of Regulatory Utility Commissioners (NARUC)
Winter Policy Summit – February 11-14, 2018, Washington, D.C.
“Utility Distribution Poles and Lines – How Strong is Strong Enough?”

2018 National Electrical Safety Code (NESC) Change Proposal Development Workshop – April 10-11, 2018, Savannah, GA
Host and Presenter

Training

2017 EUCI Seminar
Best Practices for Wood Utility Poles
Presented: “ANSI O5.1 and National Electrical Safety Code Review and Updates

2017 EUCI Symposium
“Best Practices for Wood Utility Pole Strength and Loading”
Santa Clara, CA
Presented: The full day and a half symposium
 “Wood Pole Management”
 “Wood Pole Manufacturing and Strength”
 “Pole Loading Basics”
 “NESC Loading & Strength Requirements”
 “California GO 95 Loading & Strength Requirements”
 “Wood Pole Decay & Strength Loss”
 “NESC / GO 95 Strength & Loading Comparisons”
 “Clearance Basics”
 “Pole Loading Examples”
 “Third Party Attachment Processes”

“Adding Attachments to Existing Poles”

2018 EUCI Symposium

Chicago, IL

“Best Practices for Wood Utility Pole Strength and Loading”

Updated Presentations: The full day and a half symposium

“Wood Pole Management”

“Wood Pole Manufacturing and Strength”

“Pole Loading Basics”

“NESC Loading & Strength Requirements”

“California GO 95 Loading & Strength Requirements”

“Wood Pole Decay & Strength Loss”

“NESC / GO 95 Strength & Loading Comparisons”

“Clearance Basics”

“Pole Loading Examples”

“Third Party Attachment Processes”

“Adding Attachments to Existing Poles”

Exhibit 2

Technical Bulletin



TB-17-083

June 23, 2017

Attention

Regional Engineering, Operations, Construction & Maintenance

Summary: Pole Tagging Awareness

The Pole Inspection program inspects and treats wood poles on a 10 year cycle in order to assess the strength and structural integrity to determine the maintenance required to reduce wood pole failure. The tagging on the pole is an indication of the inspection results, and thus the condition of the pole. The purpose of this information is to assist in identifying pole tags in the field to determine whether a pole requires replacement or reinforcement. This bulletin is being issued for information and awareness only.

Details: Tags

Examples of Inspection, Treatment and Reject pole tag(s) combinations in the field.

Tags represent last inspection status of the poles.

Note: The condition of the poles could change from last Inspection.

Inspected Pole

Inspection Tag with no *Reject* Tag represents a pole in good condition.



Inspected and Treated Pole

Inspection & Treatment Tags with no *Reject* Tags represents a pole in good condition.



Inspection with Fume



Inspection and Internal Treatment



Inspection with Fume and Internal Treatment



External Treatment with Fume



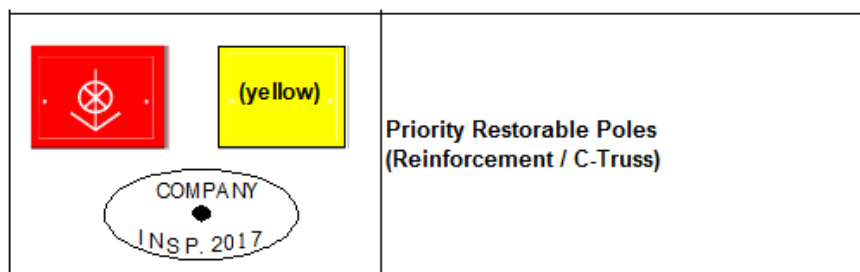
External Treatment and Internal Treatment



External Treatment with Fume and Internal Treatment

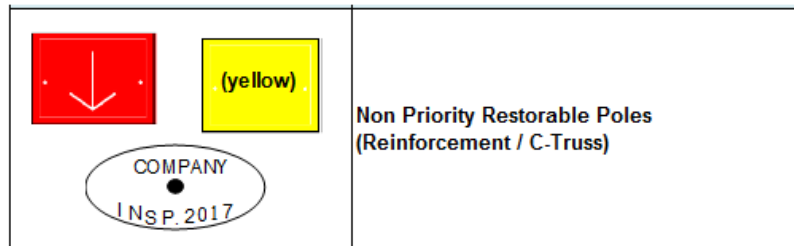
Priority Restorable (Reinforcement / C-Truss) Reject Pole

Poles will be Restored/Reinforced/C-Truss in current Inspection year. Based on Inspection results, poles will have the required strength after Trussing is complete. Poles **do not require replacement** based on yellow tag.



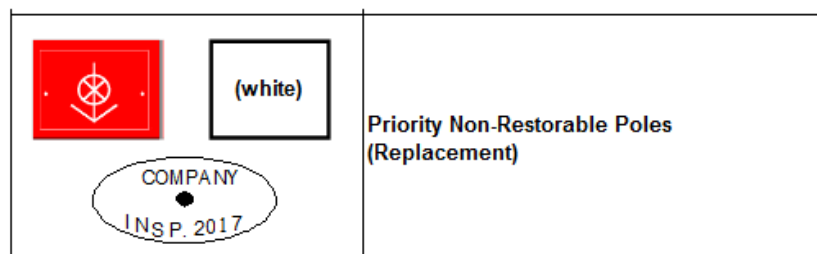
Non-Priority Restorable (Reinforcement / C-Truss) Reject Pole

Poles will be Restored/Reinforced/C-Truss after Load Calculation classification within a set time frame. Based on Inspection results, poles will have the required strength after Trussing is complete. Poles **do not require replacement** based on yellow tag.



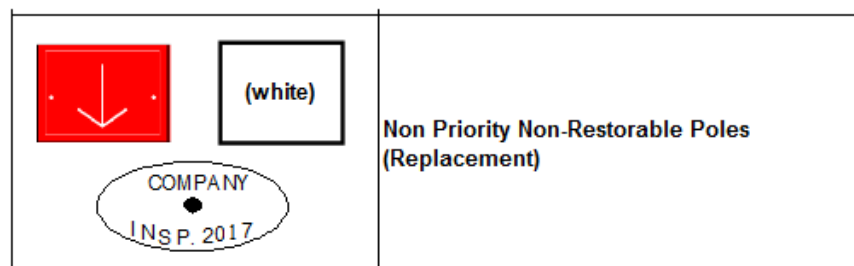
Priority Non-Restorable (Replacement) Reject Pole

Poles will be Replaced next calendar year after Inspections. Planned replacements will have work orders in AS8.



Non-Priority Non-Restorable (Replacement) Reject Pole

Poles will be Replaced after Load Calculation classification within a set time frame. Planned replacements will have work orders in AS8. Poles classified as ***meeting required strength*** after load calculation will still have reject tag and no work orders in AS8. Regions should contact the Pole Program Manager to determine if replacement is required after Load Calculations.



To conclude,

- When you see the “yellow” tag as part of the tagging combination these poles are candidates for Restoration (Reinforcement / C-Truss).
- When you see the “white” tag as part of the tagging combination these poles are candidates for Replacement.

Required Actions

Use Bulletin as reference to determine pole replacements and reinforcements.

Communication

Communicate to employees. It should take approximately 10 minutes to present this communication. Post until December 31, 2017.

Supporting Documents

None

Exhibit 3

Whitfield, Maureen

From: Richardson, Daryl:(ComEd) <Daryl.Richardson@ComEd.com>
Sent: Friday, December 14, 2018 10:23 AM
To: Whitfield, Maureen
Cc: Herrera, Sarah:(ComEd)
Subject: RE: class 1 pole replacements

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

There is no specific standard that requires pole replacements to be replaced with class 1 poles. However ComEd standards do require all new installations to be designed for Grade B construction. Since we have chosen not to create designs for TPA work we have decided to install class 1 poles because they will meet Grade B standards for line pole installations.

If we were to install class 2 poles we would need to have an engineer review each location and create a design in our pole loading program to determine what additional work would be needed at each location to meet Grade B standards. This engineering review would need to take place prior to ComEd determining the make ready cost causing further delays in issuing the make ready CWA.

From: Whitfield, Maureen <Maureen.Whitfield@crowncastle.com>
Sent: Thursday, December 13, 2018 12:58 PM
To: Herrera, Sarah:(ComEd) <Sarah.Herrera@ComEd.com>; Richardson, Daryl:(ComEd) <Daryl.Richardson@ComEd.com>
Subject: [EXTERNAL] class 1 pole replacements

Sarah and Daryl

Can you share your updated standard that is requiring that red tags be replaced with class 1 poles?

Thanks!

MAUREEN A. WHITFIELD
Manager, Utility Relations
Small Cell Solutions
T: (724) 416-2791 | M: (724) 914-7818

CROWN CASTLE
2000 Corporate Drive, Canonsburg, PA 15317
CrownCastle.com

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